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An
Inaugural Dissertation
on
Poison from Opium.

By E. Bierin Wallen,

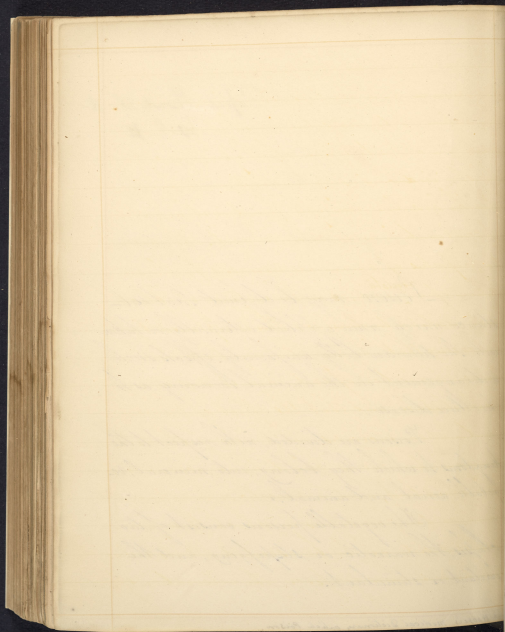
1827.

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H. J. H.

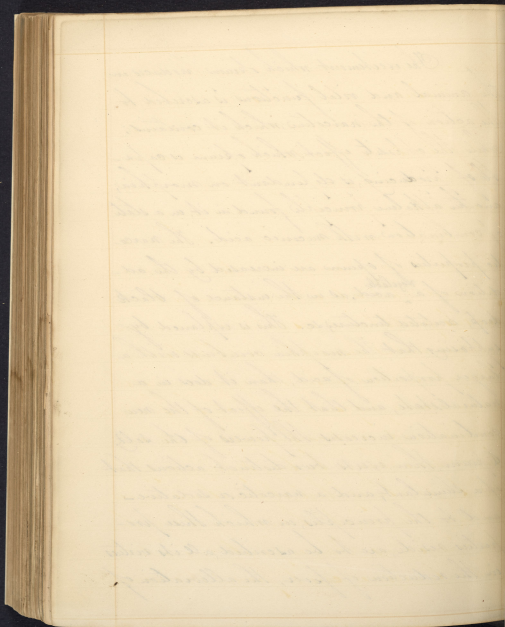
Poison may be defined that substance which when applied externally or taken into the human body uniformly effects such a derangement in the animal economy as to produce disease.

Poisons are divided, with respect to the kingdoms to which they belong, into mineral, vegetable, aerial, and animal.

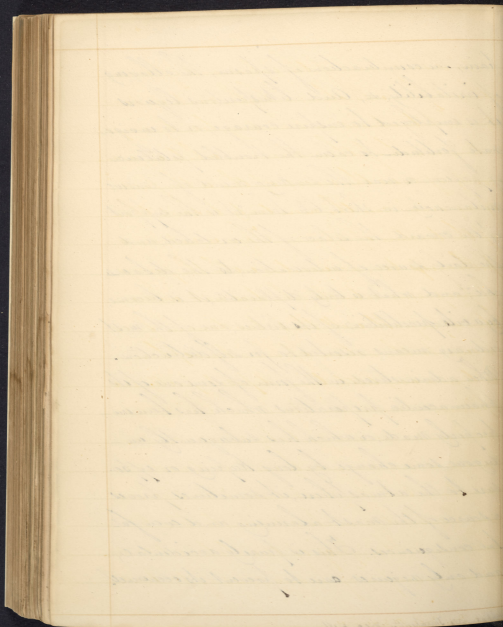
The vegetable poisons consist of two classes, the narcotic or stupefying, and the irritant or stimulant.



The excitement which opium produces in the animal and vital functions is ascribed to the action of the narcotics which it contains; while the opposite effect, which opium is capable of producing, is dependant on morphia; another alkaline principle found in it, in a state of combination with meconic acid. The narcotic properties of opium are increased by the addition of a ^{vegetable} acid, as in the instance of black drop, acetated tincture, &c. This is explained by supposing that the morphia combines with a larger proportion of acid, than it does in a natural state, and that the effect of the new combination increases the powers of the salt. Opium, then, exerts two distinct actions, that of a stimulant, and a narcotic or sedative; and to the principles, in which these properties reside, are to be ascribed, all its virtues in the reduction of fever, the alleviation of

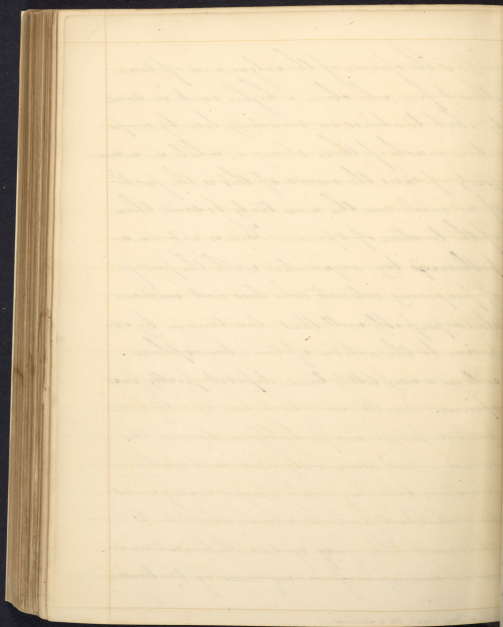


pain, the constriction of spasm, the allaying
of irritability, &c. And like spiritous liquors
it is employed to inspire courage, or to invigo-
rate fortitude - to calm the troubled retence
of passion - or near the sinking mind of penur-
melancholy - in short, like them, it is the support
of the coward, the solace of the wretched, and
the daily source of intoxication, to the debauchee;
and what is truly deplorable, it is become,
by a vile prostitution of its virtues, one of the most
ordinary means resorted to for self destruction.
When administered in the form of some one of its
pharmaceutic preparations which has been un-
properly made, or which has subsequently un-
dergone some change by long keeping, or ex-
posure to the atmosphere, it sometimes proves
a source of the most alarming and even fa-
tal consequences. This is purely accidental,
and only requires care to prevent its occurrence.



It is the opinion of the vulgar, and of some
others, I fear, who claim a higher rank in society,
that tinctures, on standing, lose by evapo-
ration much of their strength; while in a ma-
jority of cases, the reverse of this is the fact.*
of no article can this more truly be said than
of the tincture of opium. There is not an ap-
othecary's boy, acquainted with the process
of preparing extracts, who does not under-
stand perfectly well that laudanum, by ex-
posure to the action of the atmosphere,
will, in a very little time, deposit pretty pure
opium. Laudanum which has been kept un-
used until it has partially undergone this
change, is very commonly used in domestic
practice; but the most serious consequences
have resulted from its administration to
children. In proof of this statement, and
as an example of many cases of the kind,

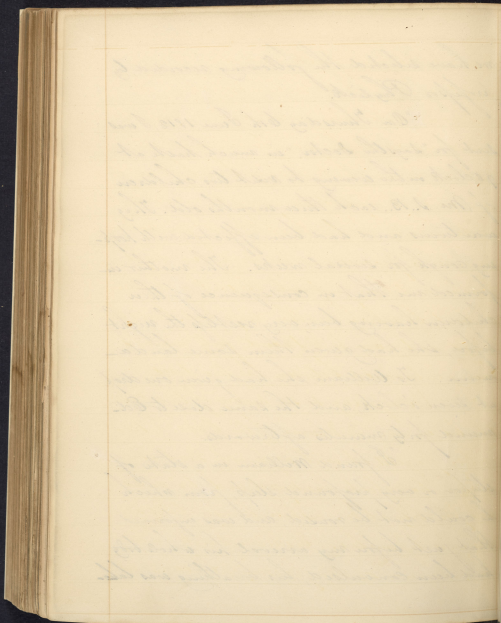
* Prof. Cope's M. S. Lectures.



we have selected the following recorded by
professor Physick.

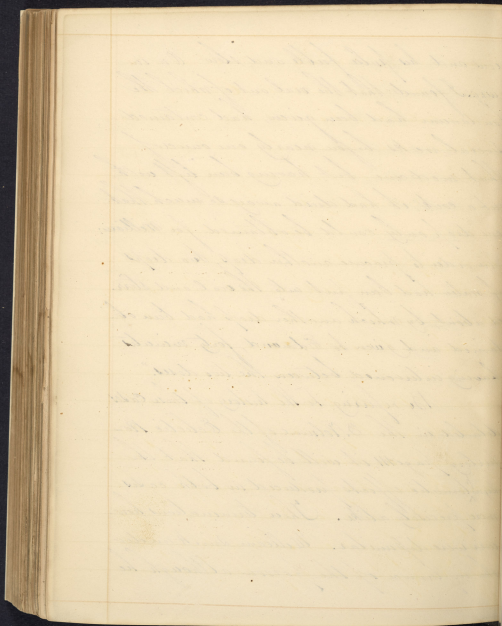
"On Thursday, 6th June, 1819, I was
sent for "says the Doctor," in much haste at
9 o'clock in the evening to visit two children
of Mr. S. B., each three months old. They
were twins and had been affected with whoop-
ing cough for several weeks. The mother in-
formed me that in consequence of their
children having been very restless the night
before, she had given them some luan-
nam. To William she had given one drop
at seven o'clock, and the same dose to Ed-
mund forty minutes afterwards.

"I found William in a state of
stupor or very profound sleep, from which
he could not be roused, and was informed
that just before my arrival his whole body
had been convulsed; his breathing was labo-



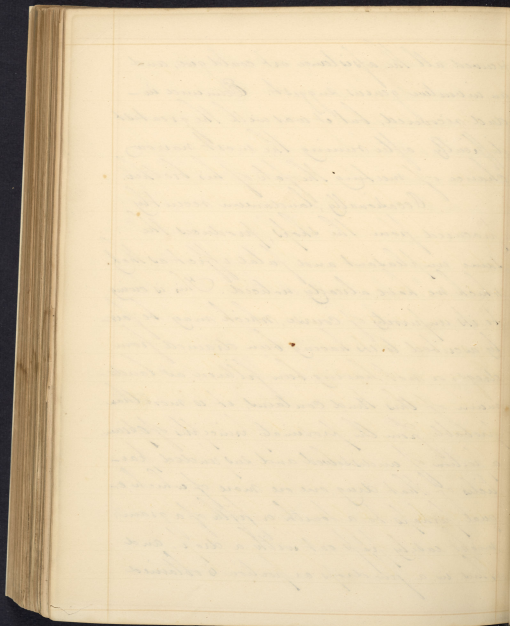
nous and his pulse feeble and slow. On in-
quiring I found that the vial out of which the
Laudanum had been given, had contained
several weeks before nearly one ounce of
that medicine, but having been left with-
out a cork, it had dried away so much that
one drop only could be obtained for William.
In order to procure another drop, two drops
of water had been put into the vial and stir-
red about, by which another drop had been ob-
tained and given to Edmund, forty minutes
having intervened between the two doses."

By referring to the history of these cases
detailed in the 3. Volume of the Eclectic Re-
pository page 111, it will be found that the
symptomatic effects produced in both cases
were precisely alike. Their terminations how-
ever were dissimilar. William sunk under
the influence of the poison although he

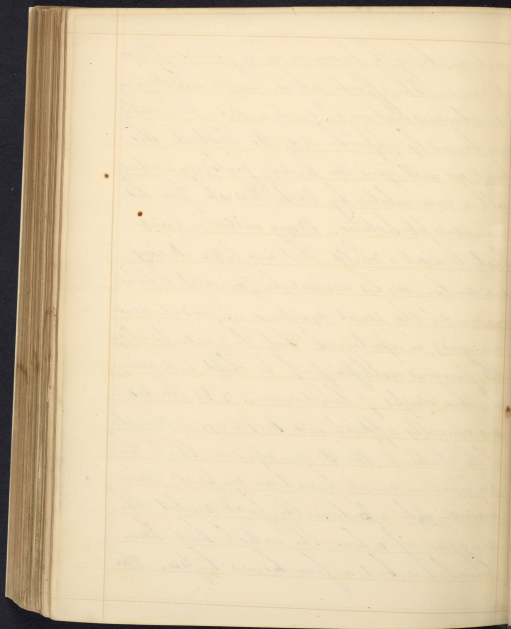


received all the assistance art could give, and
an inventive genius suggest. Edmund in-
dared recover, but it was with the greatest
difficulty after running the most narrow
chance of meeting the fate of his brother.

Occasionally, Laudanum recently
procured from the shops, produces the
same unpleasant and fatal effect as that
which we have already noticed. This is owing
to its impurity of course, which may be fair-
ly ascribed to its having been drained from
drops; or not having been filtered as lauda-
num of this kind contains, it is more than
probable from the proximate principles of opium,
a portion of undissolved and suspended par-
ticles of that drug, one or more of which, e-
qual perhaps to a fourth or fifth of a grain,
might easily pass out with a drop, and
thus in a few drops a portion is obtained



equal in strength to one or more grains of pure
opium. The effects which would result from
the administration of such a dose to a child
can be easily apprehended. To illustrate this
point we will give the leading facts connected
with a case related by Doctor Parrish from his
manuscript lectures. Being called in great
haste to visit a child that was taken ill very
suddenly, on his arrival, he found it labour-
ing under the usual symptoms of poisoning and
on inquiry he ascertained that the nurse, who day
the previous sickness of the child, had given
it three drops of laudanum. As the dose
was correctly ascertained to be age & strength
of the patient, the Dr. concluded that the
preparation must have been impure. And
accordingly to ascertain the fact visited the
druggist of whom the article had been
purchased but a few hours before. The

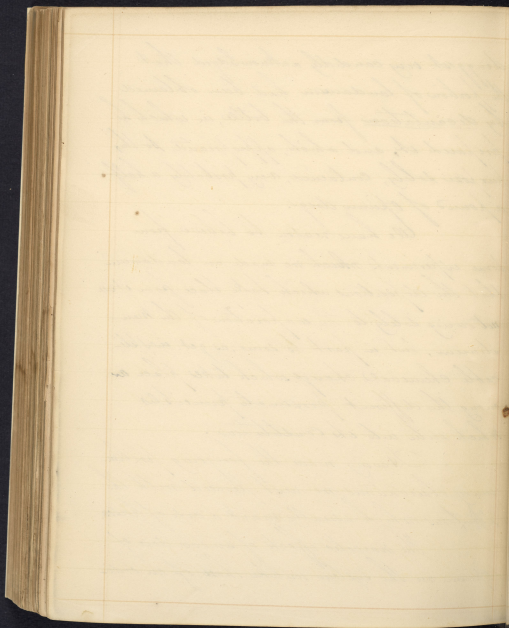


Druggist very candidly acknowledged that the portion of laudanum had been obtained by decantation from the bottle, in which he prepared it, and which, appropriated to this purpose solely, contained, very probably a half a pound of opium does.

We have reason to believe from some experiments which we made on laudanum that the dispositions which take place from it are not owing solely to the evaporation of the menstruum, but in part to some, as yet inexplicable chemical change which takes place among the different proximate principles which enter into its constitution.

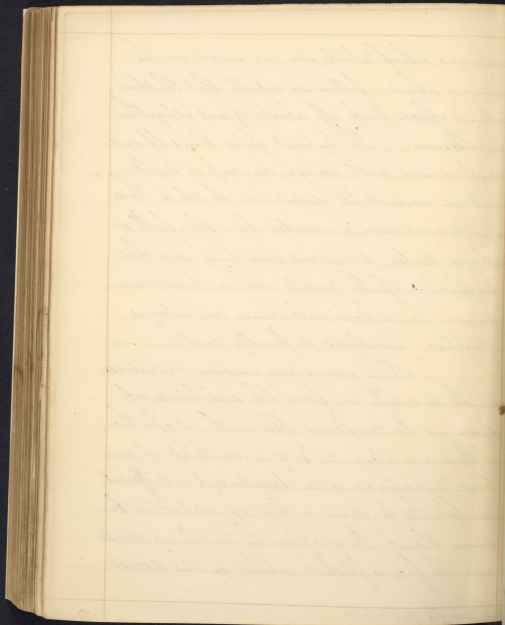
Having made the foregoing preliminary observations, we next proceed with the symptoms which usually mark a case of poison.

The narcotic effects of an over dose of opium on the system unlike those of an ordi-



hazy one, which "steals over our senses as the evening shade," follow so rapidly, that the stimulant effects pass off nearly if not altogether unobserved. The patient finds himself suddenly seized with vertigo, dimness of sight, and an irresistible disposition to sleep. These symptoms are soon succeeded by a slow, full, & strong pulse, stertorous breathing, morbid contraction of the pupils, torpor, livid countenance, *Coma somnolentum*, convulsions, apoplexy, paralysis, & finally death.

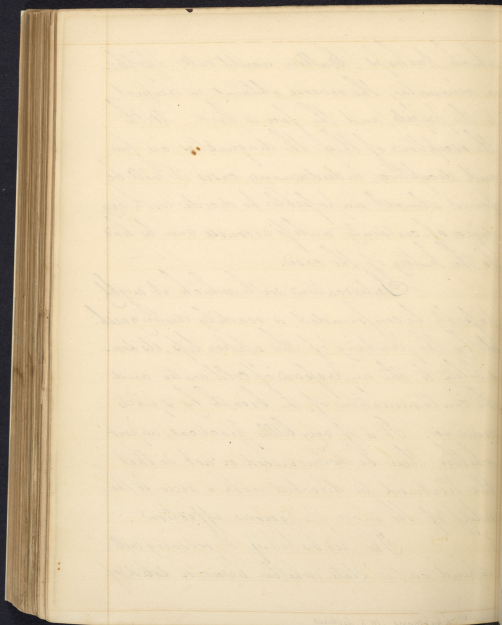
The young and unwary practitioner might be easily led from the similitude of symptoms to confound this with idiopathic or true apoplexy. It is nevertheless of practical importance as the treatment is different, to be able to draw a line of distinction between them. In apoplexy the pupils are dilated and the face is flushed, whilst in this disease



which, perhaps, Cullen would call apoplex-
ia venenata, the reverse obtains in respect
to the pupils, and the face is livid. With
the exception of these the diagnostics are few,
and deceptive, indeed in many cases it will be
found almost impossible to decide with any
degree of certainty unless recourse can be had
to the history of the case.

Intoxication with which it might
possibly be confounded is readily distinguish-
ed by the flouting of the upper lip, its sen-
sibility to the impression of cold water and
the contamination of the breath by spirits
mimo &c. It is of very little practical import
whether these be distinguished or not so that
the treatment be directed with a view to the
relief of the more dangerous affection.

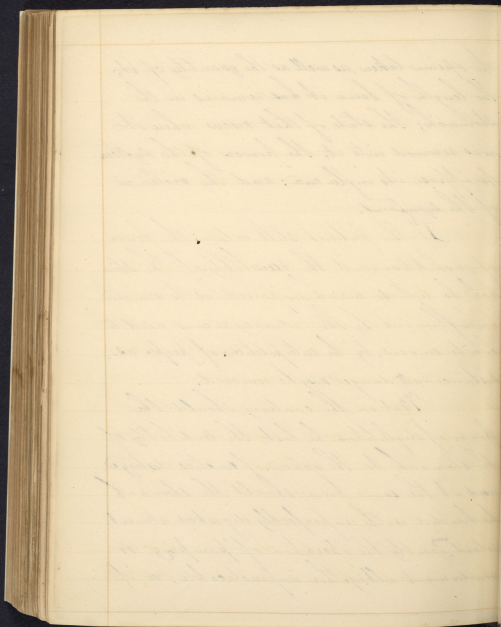
The probability of recovery will
depend on the state (whether liquid or solid) of



the opium taken, as well as the quantity of it; the length of time it ~~has~~ remains in the stomach; the state of that viscus when it was received into it; the powers of the system to oppose its influence: and the violence of the symptoms.

If the patient still retain the power of deglutition, and the sensibility of the stomach be not so much impaired as to remain uninfluenced by the ordinary means used to excite emesis, by the interposition of proper assistance, all danger may be removed.

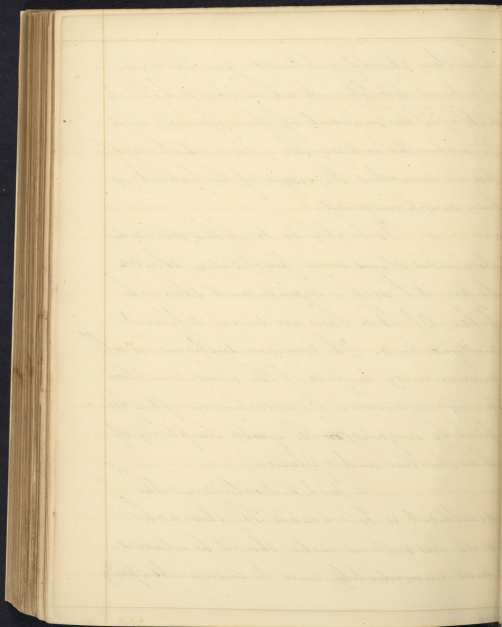
But on the contrary, should the power of deglutition be lost, the sensibility of the stomach be the action of anetics destroyed, and at the same time should the stomach be loaded with imperfectly digested aliment, retard^{ing} greatly the operation of "pumping," or rendering it altogether unpracticable; or if



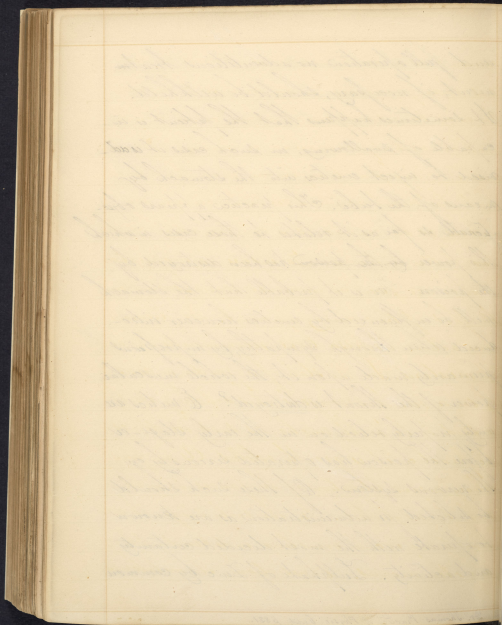
the system should not react from that state of extreme debility into which it is so liable to sink after the removal of the offensive matter, notwithstanding the administration of proper remedies, the risk of the patient is then much increased.

To be able to treat this disease in its various stages every practitioner should be provided with a syringe and stomach tube. Of these there are several different modifications. The common instrument will answer every purpose of the more complicated and expensive. Indeed they are often preferred by surgeons for the greater simplicity of their structure and operation.

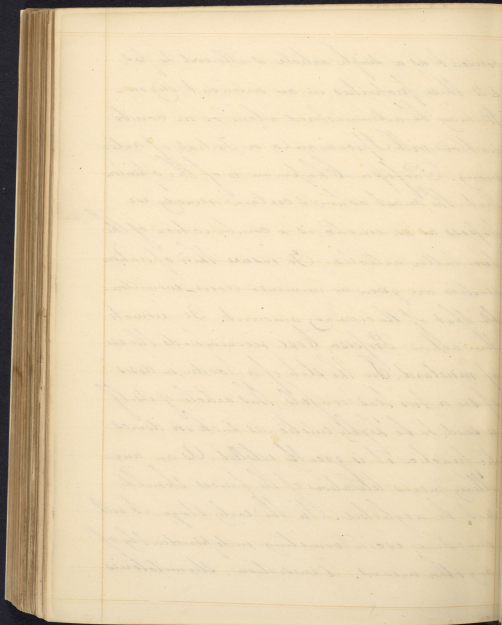
The first indication in the treatment is to evacuate the stomach. With this view an emetic should be administered immediately, and to ensure its speedy



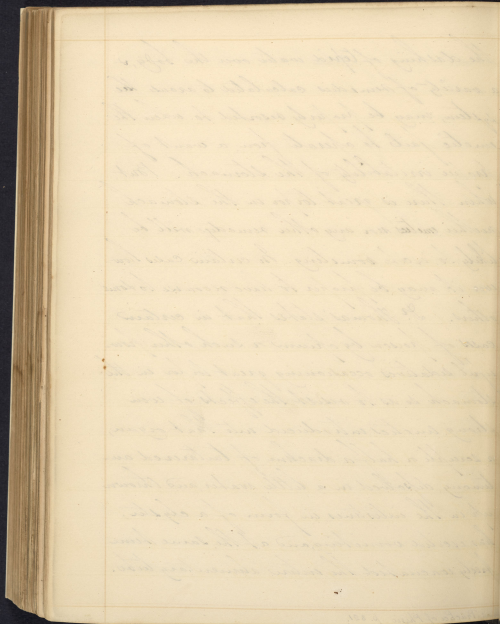
and full operation no adjuvant treatment, if necessary, should be withheld. It sometimes happens that the patient is incapable of swallowing; in such cases it is advised to inject emetics into the stomach by means of the tube. This practice appears objectionable so far as it relates to those cases in which this power by the poison has been destroyed by the poison. For is it probable that the stomach will be influenced by emetics however introduced when through sympathy, by impressions primarily made upon it, the whole muscular power of the throat is destroyed? Emetics are only properly relied on in the early stage or before the poison has operated seriously on the nervous system. Of these such should be selected for administration as are known to operate with the most decided certainty and activity. Sulphate of Zinc by common



consent as a single article is allowed to pos-
sess these properties in an eminent degree.
It may be administered alone or in combi-
nation with Ipecacuanha or Tartrate of anti-
mony. Professor Chapman is of the opinion
that the most active & certain remedy we
possess as an emetic, is a combination of the
two latter articles. To ensure their operations
emetics are given in immense doses, even dou-
ble that of the ordinary amount. To promote
their action Professor Coxe recommends the use
of mustard. In the state of a powder, in doses
of one or two teaspoonfuls, this article of itself
is said to be highly emetic—as such in domes-
tic practice it is greatly extolled. As an aux-
iliary means titillation of the fauces should
not be neglected. In the early stage it will
sometimes excite vomiting independently of
any other means. Punction, stimulatives

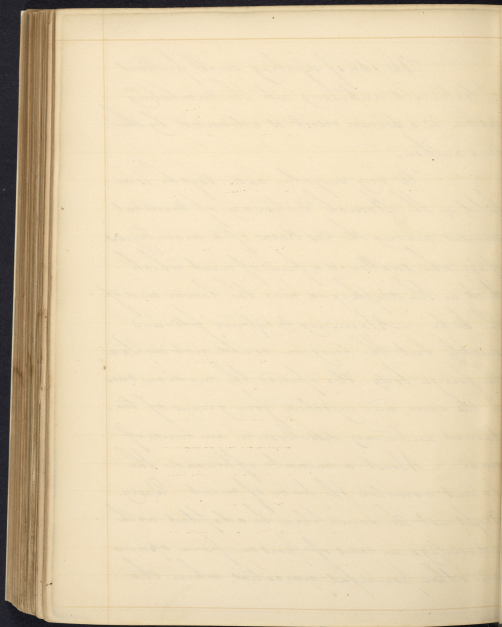


The dashing of tepid water over the body, & a variety of remedies calculated to arouse the system, may be properly resorted to when the emetic fails to operate from a want of proper irritability of the stomach. But when there is great torpor in the stomach neither emetics nor any other remedy will be likely to excite vomiting. In certain cases however it may be proper to have recourse to some others. Dr. Thomas states that in certain cases of poison by opium or such other powerful sedatives occasioning great torpor in the stomach so as to resist the effects of even strong anetics introduced into that organ, a scruple or half a drachm of tartarized antimony, dissolved in a little water, and thrown up in the intestines in form of a clyster, has excited vomiting, and at the same time fully evacuated the entire alimentary tube.



The idea of injecting small portions of tartarised antimony into the circulating system as a dernier resort is advanced by the same author.

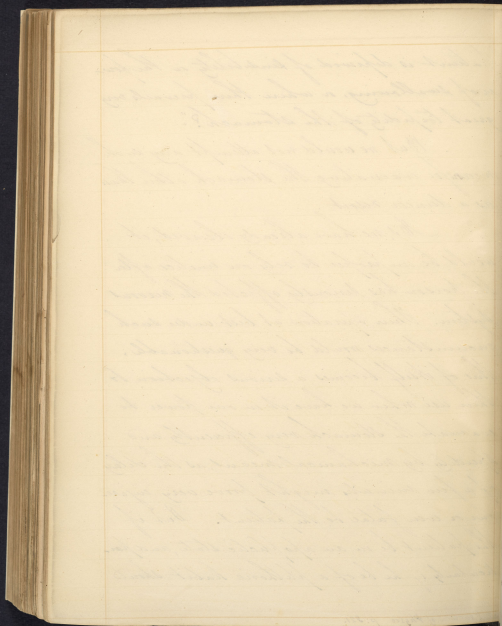
"A very singular case says he is related in the French Dictionary of Medical Sciences, among the Cas Rares, of a man beyond age, who swallowed a piece of meat which stuck in the oesophagus, near the lower end of the tube. Alarming symptoms followed quickly, but the surgeon could not displace the foreign body. He opened the median vein in the arm, and injected four grains of tartarised antimony dissolved in an ounce of water. About a minute afterward the patient vomited the piece of meat. Query. Might not the same plan be adapted with advantage in cases of poison from opium and other powerful narcotics, when the



patient is deprived of sensibility or the power of swallowing, or where there prevails very great torpidity of the stomach?"

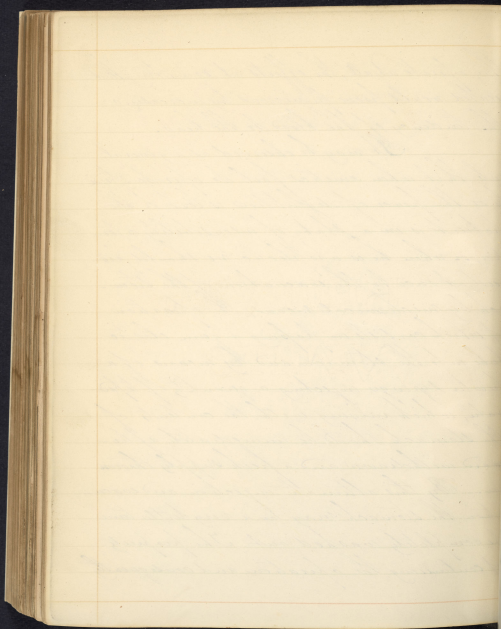
But we would not attempt any such measure for evacuating the stomach other than as a dernier resort.

As we have already observed, it would be improper to rely on emetics after the poison has seriously affected the nervous system. Their operation at best under such circumstances would be very questionable, this of itself becomes a serious objection to their use when we have it in our power to evacuate the stomach very efficiently and speedily by mechanical means, as the delay of a few minutes might prove very injurious or even fatal to the patient. But if the patient be in an apoplectic state, and particularly if he be of a phlegmatic habit, should



They operate at all, the effects at vomiting thus created would prove pernicious, by increasing the tendency of the blood to the head.

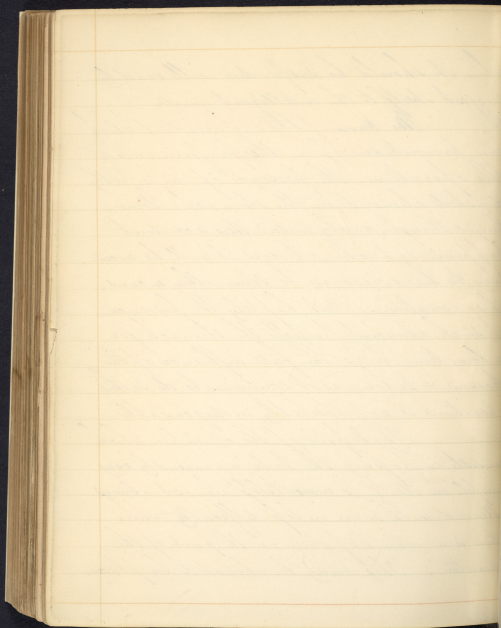
It may be observed as a general rule that when emetics fail to operate speedily, or the power of deglutition is lost, or the patient is in a state of insensibility or torpor, or when he is apoplectic, we should resort at once to the evacuation of the stomach by mechanical means; the operation of which consists in passing a gum elastic tube into the stomach and by means of a syringe injecting a quantity of tepid water, which mixing with the contents of the stomach should be immediately afterwards withdrawn and a fresh supply thrown in. By this alternate injection and evacuation the stomach may in a very little time be completely washed out. The propriety of continuing the operation, and consequently



when it should be suspended will readily suggest itself to the intelligent operator.

We know of but one accident which can prevent success in the performance of this operation - the presence of imperfectly digested aliment in the stomach. Sometimes though rarely indeed this accident happens; but when it does it will be necessary to have recourse to some other means of evacuation. But happily the presence of such aliment protects the stomach for a long time from the full influence of the poison, & so long as it continues to do so, this operation is not absolutely indispensable.

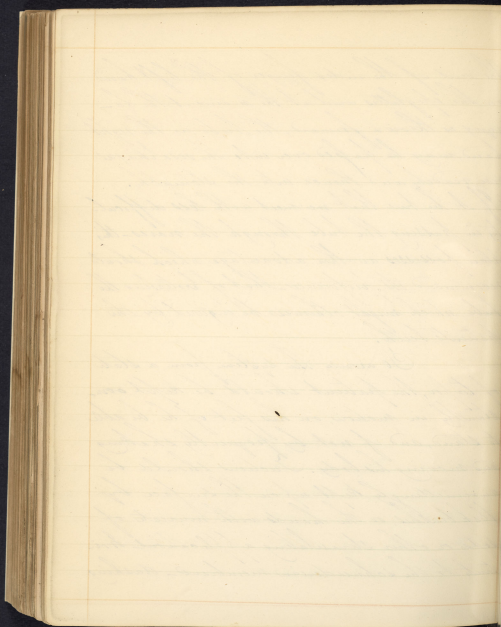
That part of the operation which consists in passing the tube, apparently very simple in itself, is nevertheless almost always attended with more or less difficulty - when there is a want of skill on the part of the operator. This may be obviated by placing



The end of the index finger of the left hand
on the epiglottis and at the moment the la-
rynx is thrown forward, the tube in the right
hand, may be passed over into the oesophagus
very readily and thence into the stomach.

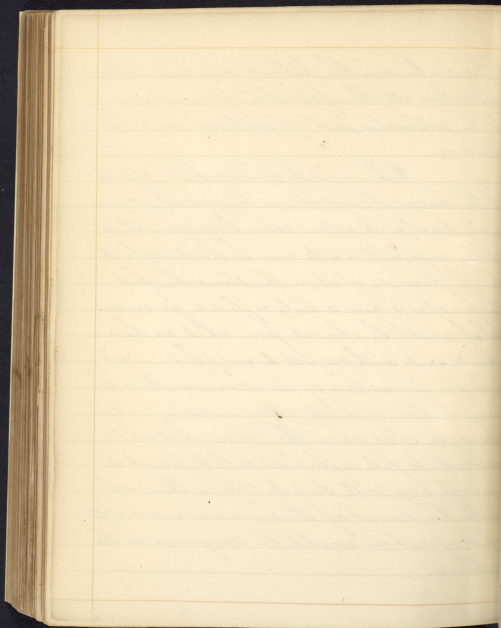
If it be true that we meet with less difficul-
ty in passing the tube through the nares - this
plan possesses another advantage which should
recommend its preference - that of protecting the
tube, which might otherwise be injured by the
patient's teeth.

To arouse the system from a state
of torpor, the patient should be kept con-
stantly in motion, on his feet if he be able
to stand, and if not by frequently shaking
and moving his body. Trichinae should be
unremittingly kept up on the surface by
fresh bleaches, or the hands with muricic of
soda or other stimulating applications. Bri-
tants to the Schneiderian membrane - dashing

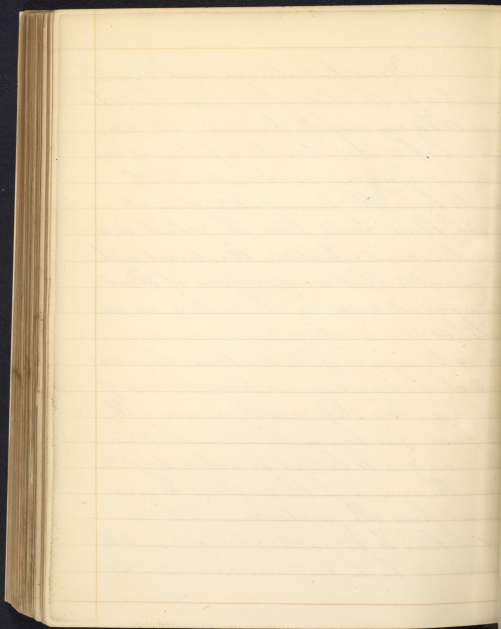


Spiced water over the patient every now & then
and above all the application of sinapisms
to the extremities and epigastrium are to be
resorted on.

With a view to counteract the effects
of the poison it was at one time a very com-
mon practice to administer large quantities
of the vegetable acids even without respect
to the presence of it in the stomach; but
the practice is now entirely exploded, for reasons
which must be obvious from what we have
already said with respect to morphia. But
after the evacuation of the stomach the ad-
ministration of acids, strong infusions of cof-
fee &c, in cases where the poison has not
exerted its full influence will be found to
answer very well, but to rely on these solely
in the treatment of the more advanced stages
of its operation would be dangerous in the
extreme.



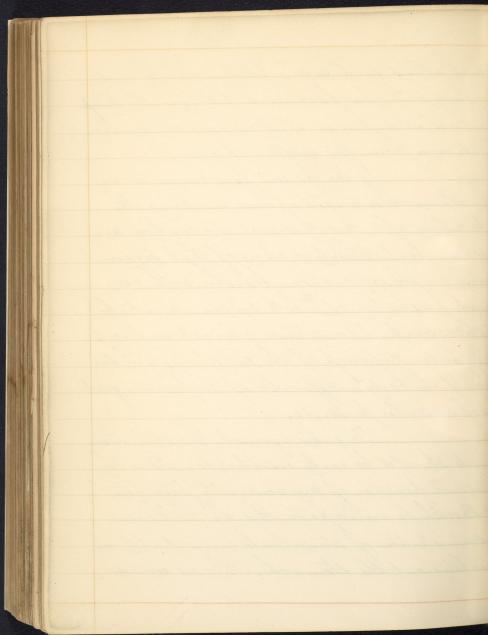
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Venesection although most generally indicated by the state of the pulse should be nevertheless very carefully practised. The debility which supervenes on the cessation of excitement, increased as it undoubtedly would be by the previous abstraction of much blood would place the patient in a very dangerous situation. We do not wish it understood that we disapprove of blood-letting in all cases; on the contrary we are satisfied it is sometimes imperiously demanded by the urgency of the symptoms; there are such as characterise a well marked case of apoplexy. This state generally comes on after the poison has been in the stomach some time, and is to be met by active depletion from the arm, or if the symptoms be very urgent from the jugular vein. The quantity of blood to be abstracted can only be determined by the particular circumstances



which attend each case. When the patient is young and of a phthoric habit, and the symptoms are urgent, even sixty or more ounces may be drawn from the system at once.

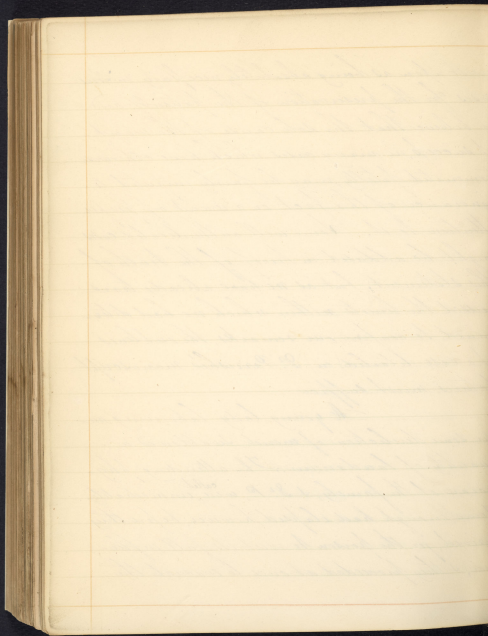
If the poison have remained in the stomach a length of time, rendering the operation of a mechanical evacuation necessary, great debility & atony of that organ ensue on its evacuation, together with very great prostration of ^{the} whole system - marked by a slow weak, & sometimes almost imperceptible pulse, coldness of the extremities, and surface of the body - difficulty of respiration, great loss of muscular power, &c.

To guard against this state stimulants should be early resorted to. It is the constant practice of my venerable preceptor, Dr. Parrish, to anticipate this by the liberal administration of stimulants immediately on washing out the stomach. This we would



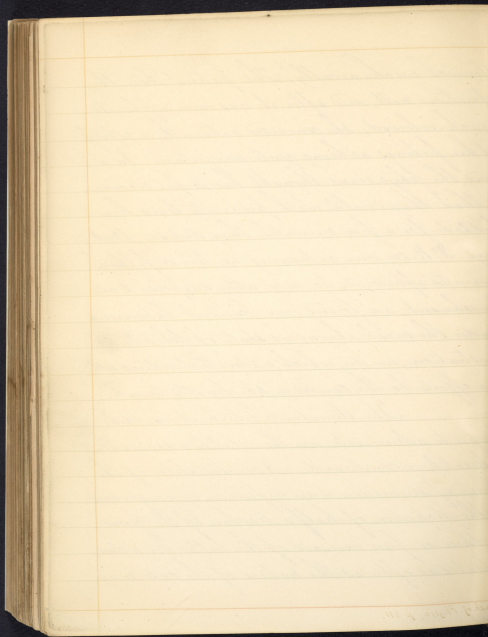
insist upon as being absolutely necessary in some cases for the preservation of the patient; and we believe that the sole cause of the want of success, in many cases which have otherwise terminated fatally, may be fairly imputed to ignorance of this fact or a want of proper attention to it. Some well authenticated cases might be adduced in proof of the truth of this statement, but as we have already transgressed the limits within which we had determined to confine our remarks, the outlines of a case detailed in Dr. Parrish's manuscript lectures, must suffice.

A young lady labouring under some dereliction of mind, swallowed a quantity of laudanum. The attending physician of the family, & Dr. P., were ^{called} immediately. Time enough had elapsed, however, before they arrived, for the poison to exert its full influence, & they proceeded at once to evacuate the



Stomach mechanically. The patient bore the operation well, and after it was over appeared much relieved; she conversed rationally, & expressed her feelings as being quite comfortable. In a word the physicians thought her so far recovered that they could with propriety leave her bed side for a few minutes, they did so. But says J. P. on our returning in ten or fifteen minutes afterwards, to my utter surprise & astonishment, we found our patient labouring under the most alarming state of debility & prostration, under which, notwithstanding all our efforts to the contrary, she finally sunk.

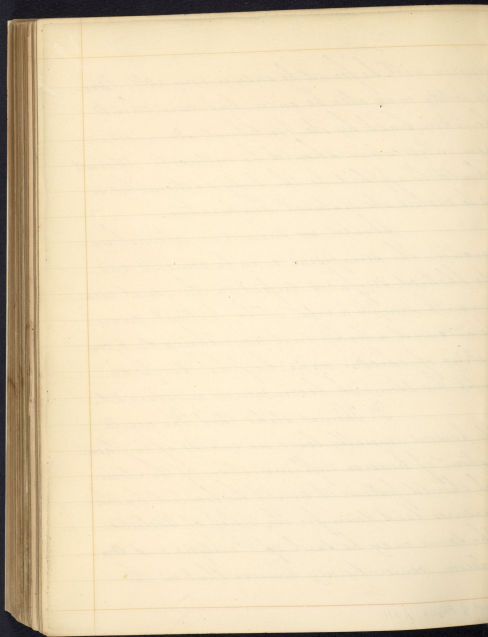
The stimulants, which it would be proper to administer, are the volatile & aromatic, separately or combined. A combination of the spirits of ammonia & an infusion of ginger root in the proportion of half a drachm of the former, to three or four ounces of the latter for a dose, repeated as often as the nature of the case may



regimen will be found to answer very well. Brandy toddy may also be given but care should be taken least by its too liberal administration intoxication should be induced. Warmth should be applied to the body & extremities so as to restore its natural temperature.

Should we succeed in establishing reaction the sinapisms may be removed and the blistered surfaces dressed in the usual manner with simple ointment. The patient may be allowed a light and nourishing diet, consisting of chicken water, beef tea, soups &c. until his stomach becomes more invigorated.

Dr. Thomas states that "the vegetable poisons generally leave no marks of inflammation;" if however inflammation of the stomach should follow it must be treated by those measures laid down for the relief of Gastritis. The same may be said of Paralysis and Convulsion, remembering however that in the



In treatment of this those antispasmodics should
be selected for administration which do not
combine with their ordinary properties that
of a narcotic; for such might probably prove
very injurious.

